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TWO NEW "STRUMIGENYS" ANTS FROM THE AMAZON VALLEY IN BRASIL (Hymenoptera, Formicidae)¹

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(With 5 text-figures)

A myrmecological collecting trip in the Amazon Valley of Brasil undertaken by W. L. Brown, Jr., P. F. Darlington and K. Lenko in 1962 brought to light among other rarities two new and striking species of the dacetine genus *Strumigenys*, the description of which we offer in the present paper.

The types of the new species are deposited in the Museum of Comparative Zoology at Harvard University (MCZ), in the Departamento de Zoologia da Secretaria de Agricultura de São Paulo (DZSP), and in the private collection of W. W. Kempf (WWK).

In citing measurements and proportions, we use the abbreviations standard in Brown's work on the dacetine ants (cf. BROWN, 1962: 254):

Head length (HL), maximum measureable length of head proper as seen from dorsal full-face view, including all of clypeus and occipital lobes.

Head width (HW) is the maximum width of the cranium measured in the same view as for HL.

Mandible length (ML), exposed length of mandibles, including apical teeth, measured in the same view from which HL is obtained.

Weber's length (WL), oblique length of thorax (alitrunk) from side view, measuring from base of anterior pronotal declivity to metasternal extremity.

Total length (TL) of the body is the summed length of ML, HL, WL plus the axial lengths of petiole, postpetiole and gaster measured separately.

Cephalic index (CI), head width expressed as a percentage of head length, or $HW/HL \times 100$.

Mandibulo-cephalic index (MI), $ML/HL \times 100$.

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Strumigenys tridifera sp. n.

(Figs. 1-3)

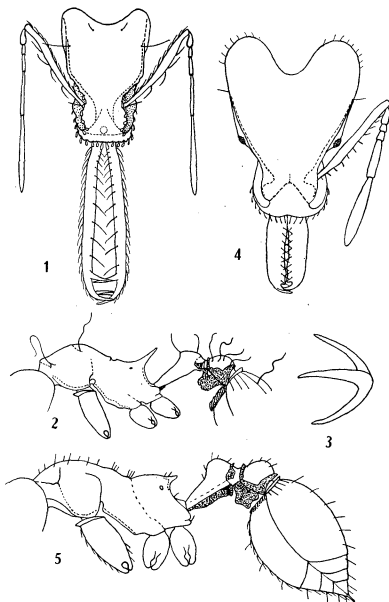
Worker (holotype) — TL 3.4, HL 0.72, HW 0.48 (CI 67), ML 0.89, (MI 124), scape L 0.56, funiculus L 0.93, max. diameter of eye 0.04, WL 0.72, petiole L 0.32 mm. General color ferruginous, gaster infuscated. Mandibles, clypeus, antennal scapes and legs very finely and densely punctulate, with superimposed fine, mostly indistinct longitudinal rugulae; lower pleura of thorax with sculpture more or less effaced. Basal gastric costulae 7-9, strong and distinctly separated, the median ones extending over half the length of tergum I of gaster, the lateral ones much shorter. Tergum I of gaster between basal costulae finely, longitudinally striolate, the sculpture becoming more or less aciculate at posterior half, subopaque except on sides which are smooth and shining, as is the sternum I. Mesonotum with a fine median longitudinal carina.

Ground pilosity of head consisting of fairly abundant, slender, weakly clavate, arched, reclinate or decumbent hairs, longest toward occiput. Anterior clypeal border with 12 spatulate hairs, the lateral ones curved mesad, the central pair longest. Scares with two long, thin hairs curved basad on leading edge, other oblique to subdecumbent hairs directed apicad on all surfaces. Two long and pointed hairs on vertex, and a very long hair projecting postero-laterally from sides of occipital lobes, inside the frontal carinae. Ground pilosity of thorax like that of head, but sparser; 4 long straggling flagellate hairs, one on each humeral denticle, and one on each postero-lateral margin of pronotum, straddling the mesonotum. Nodes of peduncle and dorsum of gaster with moderately abundant, well spaced, long, straggling, erect and recurved flagellate hairs. Trigger hairs very short, inconspicuous and delicate, functionally substituted by the row of oblique long hairs along the inner border of mandibular shaft.

Head (Fig. 1) somewhat aberrant in shape, elongate, occipital lobes little expanded laterad with subparallel sides; deeply and semi-circularly excised behind, slightly dorso-ventrally depressed, the dorsum weakly convex behind, rather flat in front. Antennal scrobe moderately broad, shallow, extending as far as occipital corner, bounded above by a prominent carina which becomes vestigial shortly in front of occipital lobe; inferior limit of scrobe not marked. Preocular carina greatly prominent, with a convexity below antennal socket, fading out at level of the very small compound eye, counting little more than half a dozen ommatidia. Side of head immediately in front of eye not excavate, so that the eye is not protuberant nor prosopient. Clypeal disc flat, with a median smooth circular spot, anterior border straight, crenate, corners broadly rounded.

Mandibles extremely long, longer than head proper, shafts nearly straight; external borders very weakly convex, drawn in rather sharply at the insertions and, near the apices, curving very evenly into the apical fork. Inner border

practically straight, so that the inner and outer borders of the shaft are parallel or very nearly so from the basal constriction to the preapical fork. Armature of each mandible consisting of an apical fork of two very long, slender, spiniform



Strumigenys trudefera sp. n., worker — Fig. 1: Head in full-face view; fig. 2: thorax and pedicel in side view; fig. 3: apical fork of mandibles seen in frontal aspect. *Strumigenys princeps* sp. n., worker — Fig. 4: Head in full-face view; fig. 5: thorax and pedicel in side view. (Kempf del.)

teeth, subequal in length, bent inwardly and approximately at right angle; no intercalary teeth or denticles; and a single, straight, acute, preapical tooth, as long as the dorsal apical tooth, seen from the front (Fig. 3) turning first

obliquely upward then horizontally inward; situated at the first apical fifth of the mandibular length. No other teeth or denticles on the mandibles with the exception of the hidden basal process.

Antennal scape slightly longer than the distance from its insertion to the posterior border of the occipital lobe on the same side, almost straight, quite slender, slightly thickened at about the apical quarter. Funiculus extremely slender; apical segment (V) slightly shorter than I-IV taken together; basal segment (I) shorter than IV and also shorter than II plus III; II distinctly shorter than III, both elongate.

Thorax (Fig. 2) slender; promesonotum in profile moderately convex; posterior mesonotum straight; dorsum of propodeum extremely weakly convex. Pronotum as seen from above with a distinct arched anterior border, denticulate humeri, and straight, immarginate, posteriorly convergent dorsolateral borders, below which the sides of the pronotum bulge behind the humeri, so that the anterior half of the thorax seen from above forms a circular outline. Both promesonotal and metanotal sutures at least vestigial, the latter marked by a weak transverse carinule, followed by a faint transverse depression. Propodeal teeth spiniform, exceptionally long, slender, straight, and acute, divergent and directed dorsad from the plane of the propodeal dorsum at angle of about 45° or slightly more; much longer than the distance between the centers of their bases, longer than the propodeal declivity beneath them, and about as long as the petiolar node is wide. Each tooth subtended by a cariniform vestige of infradental lamella bordering each side of the concave propodeal declivity.

Petiole subclaviform, peduncle long and slender, longer than the distinctly set off node. Node, seen from above, suboval, slightly longer than broad (11:9). Petiolar spongiform tissues reduced to a small triangle jutting off posterolaterally from node, and a short, vestigial, low strip ventrally on basal half of peduncle. Postpetiolar disc trapezoidal, slightly broader than long (13:11), its surface convex, reticulate-punctate and rugulose and opaque; laterally and ventrally with voluminous spongiform appendages. Anterior pad of spongiform hairs on sternum I of gaster moderately developed.

Paratype workers resembling the holotype, with following variation in measurements (4 specimens measured): TL 3.0-3.4, HL 0.65-0.72, HW 0.43-0.47 (CI 64-66), ML 0.75-0.88 (MI 115-122), scape L 0.50-0.56, funiculus L 0.78-0.93, max. diameter of eye 0.03-0.04, WL 0.65-0.70, petiole L 0.29-0.33 mm.

Female (paratypes) — TL 3.4-3.5, HL 0.70, HW 0.50 (CI 71), ML 0.73-0.75 (MI 104-107), scape L 0.50-0.51, funiculus L 0.84-0.85, max. diameter of eye 0.09, petiole L 0.37 mm. Completely similar to the worker with the exception of the usual caste differences.

Types — 2 workers (holotype WWK, paratype MCZ) collected August 6, 1962 in leaf litter Berlese samples in the degraded rainforest at and near Utinga, outside Belém do Pará, Brasil, by P. F. Darlington and W. L. Brown, Jr. 3

workers and 2 dealate females (paratypes MCZ, WWK) collected August 28, 1962 by hand with Berlese funnel from thin leaf litter on sand in cut-over rain forest, at Cachoeira Alta near Rio Tarumã, Amazonas State, Brasil, by W. L. Brown, Jr.

Discussion — The present species, in spite of a habitus similar to the *cordovens*-group, belongs to the group of *ludia* and is closest to *longispinosa* (BROWN, 1957: 123-126). In BROWN's key (1962: 257-264) it runs easily to *S. longispinosa*. But *trudifera* differs markedly from *longispinosa* in its smaller and relatively much more slender body, especially its very narrow head, with nearly straight-sided, narrowly rounded occipital lobes. Also the mandibles are noticeably longer than the head proper in both worker and queen, while in *longispinosa* they are shorter than the head. In *trudifera*, the preapical teeth are arched obliquely above the plane of the mandibular shafts, while they lie flatter in *longispinosa*. In *trudifera*, the hairs on the anterior margins of the scape number about 5, are long and flexuous, and assume reclinate positions: basal (1) and apical hairs (4 and 5) directed apicad; (2) and (3) longest and directed basad; in *longispinosa*, the scapes show 8-10 short, apically-inclined spatulate hairs of nearly uniform length. Further differences of *trudifera* from *longispinosa* are: the greatly expanded preocular carinae, the straight anterior clypeal border; the propodeal spines more elevated and a bit shorter; node of petiole set off from peduncle; postpetiolar disc sculptured; spongiform appendages on petiole and postpetiole less abundantly developed; tergum I of gaster subopaque and sculptured.

Strumigenys princeps sp. n.

(Figs. 4-5)

Worker (holotype) — TL 5.0, HL 1.29, HW 0.99 (CI 76), ML 0.53 (MI 41), scape L 0.80, funiculus L 1.12, max. diameter of compound eye 0.07, WL 1.25, petiole L 0.51 mm. General color ferruginous; mandibles distinctly darker; legs a trifle lighter. Head capsule, scape, thorax, legs, petiole and postpetiole densely punctate and opaque; disc of mesopleura smooth and shining; basal half of mandibles finely and superficially punctulate, apical half smooth and shining; gaster smooth and shining. Dorsum of head, occipital lobes, dorsum of thorax, petiolar node, postpetiole and gaster with numerous short, bristly, erect or suberect hairs (fringing hairs shown in Figs. 4 and 5); scapes and legs with oblique to subdecumbent hairs, the former with a row of 9 standing hairs projecting from the leading edge; hairs on outer face of mandibles, on gular face of head and antennal funiculi appressed; inner border of mandibles with short, oblique hairs; fringing hairs of clypeus slightly spatulate; a somewhat longer, stiff hair projecting laterad from each side of head, behind eyes, and from the humeral denticle on thorax; gastric sternum with most of the hairs recurved. Silky pubescence confined to funiculi, flexor face of tibiae, tarsi, and hypopygium. Trigger hairs long, attaining apical third of mandibles.

Head as shown in Fig. 5; large, cordate, elongate, somewhat depressed, with prominent occipital lobes and correspondingly very deep posterior excision; antero-lateral borders of occipital lobes straight, convergent anteriorly. Clypeus triangular, flat, posterior angle well-defined; anterior border very gently convex, mesially slightly impressed, laterally broadly curved backwards to meet the preocular laminae which fade out on sides of head at the bottom of the deep preocular constriction. Behind this constriction the cheeks become prominent, exposing in dorsal view the compound eye, which counts less than 20 pigmented ommatidia and not more than 5 in a row across the greatest diameter; the central axis of vision of the eye is directed obliquely forward and laterad (prospicient eyes). Frontal area obsolete. Frontal carinae narrowly lamellate, posteriorly divergent, fading out at level of the single, longer postocular bristle. Antennal scrobe shallowly excavate beneath the frontal carinae, inferiorly immarginate, extending a little further backwards than the frontal carinae. Dorsum of head between frontal carinae very gently convex in both directions.

Mandibles stout, relatively short, inserted very close together, their shafts nearly straight, slightly drawn in at base, with most of their inner borders opposed directly (near base and apex) at full closure. Inner borders each with ventral and dorsal margins; preapical tooth blunt and short. Apical fork consisting of two stout spiniform teeth, slightly diverging, the lower tooth longer than the upper. Intercalary tooth represented by a small, subacute spur, fused most of its length with the dorsal face of the ventral apical tooth.

Antennal scapes virtually straight, slender, with a slight subbasal incrasation and gently tapering apically, the broadest point at about the basal fifth of the length. Funiculus with the apical segment (V) about as long as I-IV combined; IV about as long as I-III; I about as long as II-III, the latter scarcely longer than broad.

Thorax as shown in Fig. 5. Promesonotum gently convex in profile. Anterior border of pronotum narrowly lamellate, obliquely converging anteriorly, forming in the middle a subacute angle or tooth. Humeri scarcely marked, but with a very small piligerous tubercle. Pronotal dorsum immarginate laterally without a sagittal carinule. Promesonotal suture vestigial to almost obsolete in the middle. Mesonotum laterally immarginate without conspicuous piligerous tubercles. Metanotal suture distinct and gently impressed. Propodeal teeth small but acute, scarcely elevated, about half as long as the distance between their apices. Infradental lamellae at best vestigial, except for inferior metasternal lobes, flanking the petiolar insertion; sides of declivous face of propodeum practically immarginate. Metapleural bulla fairly conspicuous, with a large posterior opening continued forward as a ventro-lateral slit.

Petiole with a slender peduncle slightly longer than bare part of node; the latter about as long as broad in dorsal view, anteriorly and laterally immarginate, posteriorly with a narrow lamellate and foliaceous border which becomes broader on the sides but does not conspicuously jut out laterad; ventral

foliaceous strip broad, narrowing towards front. Postpetiolar disc trapezoidal, little broader than long, conspicuously convex in both directions, lacking longitudinal costulae or rugae; dorsal spongiform borders and appendages rather modest, the parts bordering the sides of the postpetiolar disc not projecting nor visible in dorsal view; inferior appendages better developed, as shown in Fig. 5. Gaster with antero-dorsal narrow spongiform margin and a weakly developed anteroventral pad of spongiform hairs. Tergum I with approximately 10 basidorsal costulae, which are shorter than the length of the postpetiolar disc.

Female (paratype) — TL 5.6, HL 1.44, HW 1.15 (CI 80), ML 0.59 (MI 41), scape L 0.85, funiculus L 1.32, max. diameter of eye 0.28, WL 1.49, petiole L 0.59 mm. Differs from the worker in the usual characters of full sexuality. Compound eyes large, convex and protruding. Ocelli small, each with a small black callus. Humeri scarcely marked, the piligerous tubercle very inconspicuous. Scutum and scutellum irregularly and indistinctly rugulose; scutellum with a sagittal carinule. Only a small part of mesepisterna smooth and shining. Propodeal teeth small, infradental carinule indistinct. Basidorsal costulae on gaster as in worker, but with interspersed, fine, almost indistinct, close striation, which covers nearly the basal third of tergum I. Wings slightly infumated. Definition and pigmentation of veins as in the female of *precava* (cf. BROWN, 1953: 199). The remaining characters as in the worker caste.

Types — Many workers and females (holotype WWK, paratypes MCZ, DZSP n. 3073, WWK), all from the same colony taken by Brown and K. Lenko at Ponta Negra, Amazonas State, on the Rio Negro above Manaus, on September 1, 1962, in second growth rain forest or "capoeira", about 100 m from the river bank; the nest was a large one, containing several hundred workers with brood and alate females, and was in a rotten palm stump in deep shade. Just above the *Strumigenys princeps* nest and completely interdigitating with it was a populous nest of the much larger ponerine ant *Neoponera apicalis*, and below and surrounding it was a large nest of a yellowish *Crematogaster*. The holotype worker and an additional 25 paratype workers and 6 paratype females were thoroughly studied and measured; the rest of the material was only cursorily examined. (Brown notebook No. M-135.)

Variation — The range of the critical measurements for workers is as follows: TL 4.5-5.1, HL 1.18-1.30, HW 0.92-1.03 (CI 76-80), ML 0.51-0.57 (MI 41-45), scape L 0.73-0.80, funiculus L 1.02-1.13, max. diameter of compound eye 0.07, WL 1.11-1.25, petiole L 0.50-0.51 mm. Females: TL 5.1-5.6, HL 1.41-1.47, HW 1.13-1.19 (CI 80-82), ML 0.59-0.64 (MI 41-43), scape L 0.85-0.88, funiculus L 1.27-1.33, max. diameter of eye 0.27-0.28, WL 1.41-1.51, petiole L 0.59-0.61 mm. Furthermore, workers vary in the length of propodeal spines (specimen shown in Fig. 5 has the longest), details of spongiform appendages on petiole and postpetiole, and the number of basidorsal costulae and distinctness of longitudinal striation basally on tergum I of gaster.

Discussion — In BROWN's key (1962: 257-264) *S. princeps* runs to couplet 12, where it disagrees with either alternative on account of its short, bristle-like gastric hairs, which are not or only very slightly broadened at their apices. It is, however, very close to *S. precava* Brown, especially in the form of the head and promesonotum, but *princeps* is a notably larger and stouter species, with relatively shorter mandibles and shorter, angular preapical teeth; shorter propodeal teeth; smaller spongiform appendages (postero-dorsal collar of petiolar node obsolete) and different, more uniform, bristly pilosity; head and thorax without rugosities; promesonotum without a sagittal carinule; basidorsal costulae less numerous and decidedly shorter; clypeal border convex; humeral tubercles poorly developed; pad of spongiform hairs anteroventrally on gaster feeble and inconspicuous.

It is strange that such a huge *Strumigenys* species, still known from the single colony, has so far escaped discovery.

RESUMO

No presente trabalho, os autores propõem a descrição de duas novas espécies do gênero *Strumigenys*, recentemente descobertas na Amazônia. Uma, *S. tridifera*, se relaciona mais intimamente com *longispinosa* Brown, da qual difere nas mandíbulas mais compridas que a cápsula cefálica, na configuração da cabeça com lobos occipitais pouco dilatados e lados subparalelos, na pilosidade dos escapos antenais. A outra, *S. princeps*, embora muito próxima de *precava* Brown, distingue-se nitidamente da última pelo tamanho maior, corpo mais maciço e robusto, mandíbulas mais curtas, pilosidade do gáster que consta de cerdas simples e curtas.

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